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Wind Trajectory Tracing for Air Pollution Studies (AIRPOL)

The problem:

The Los Angeles Air Pollution Control District needed a method for tracing air parcels either forward or backward in time.

The solution:

The Wind Trajectory Computer Program has been written which provides an output that traces wind patterns in the Los Angeles Basin. With modification and appropriate wind data, this program could be applicable to other areas.

How it's done:

There are actually two programs. The first one is a data handling program, and the second is an analysis program. The two must be executed in this order.

The program is a non-real time program. As input data, the program takes wind vectors, wind station parameters, and the locations of the desired starting points. The program computes and lists the air parcel locations in half hour steps, either for the duration of the time span requested, or until no wind vector is available. In addition, it traces a nondispersing wind parcel either forward or backward in time and does so in two dimensions.

The value of such a program is that (1) it can provide data on the areas affected by an air pollution source or (2) if a monitoring station detects a pollutant, the upstream path of the air can be traced, and the potential pollution sources can be narrowed considerably.

Notes:

1. This program is written in FORTRAN IV for use on the IBM-360.
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Category 09